

puting the effect of the mountains, on the law of gravitation. Near to the elevated country the part which is to be subtracted from the computed effect is a small proportion of the whole. At a distance from the elevated country the part which is to be subtracted is so nearly equal to the whole that the remainder may be neglected as insignificant, even in cases where the attraction of the elevated country itself would be considerable. But in our ignorance of the depth at which the downward immersion of the projecting crust into the lava takes place, we cannot give greater precision to the statement.

The author finally remarks that the condition of *breakage* of the table-lands which pervades his reasoning is not applicable to such elevations as Schehallien, but to high tracts of very great horizontal extent, such as those to the north of India.

Measurements of Saturn made with the Astronomer Royal's Double-Image Micrometer employed with a Thirteen-inch Newtonian Equatoreal. By Warren De la Rue, Esq.

Reduced to M.D.
9°5430

Outer diameter of Outer Ring, Oct. 30, 1854	... 45''913	... 39''63
" " Dec. 3,	47'226	... 39'83
" " 10,	47'811	... 40'35
" " Dec. 23, 1855	46'970	... 39'53
	Mean	... 39'83
Inner diameter of Outer Ring, Oct. 30, 1854	... 41''345	... 35''69
" " Dec. 3,	41'629	... 35'11
" " 10,	11'700	... 35'20
	Mean	... 35'33
Outer diameter of Middle Ring, Dec. 3, 1854	... 39''352	... 33''19
" " 10,	39'950	... 33'72
	Mean	... 33'45
Inner diameter of Middle Ring, Dec. 3, 1854	... 31''03	... 26''17
" " 18, 1855	32'87	... 27'65
	Mean	... 26'91
Equatoreal diameter of Planet, Dec. 3, 1854	... 20''967	... 17''66

Each of the measures given is the mean of at least six readings of the micrometer, the contacts being made alternately on opposite sides. One revolution of the micrometer being equal to 8''·018, except with the lens employed on Dec. 10, 1854, when one revolution was equal to 4''·4001.

After the conclusion of the ordinary business of the meeting, Mr. Main gave a verbal account, illustrated by drawings, of the substance of his paper communicated to the Society on the *Dimensions of the Rings of Saturn.*

The drawings were intended to exhibit to the eye the appearance of the Saturnian system according to the various estimations of the observers who had chiefly devoted themselves to the scrutiny of the planet, namely, M. Encke, Mr. De la Rue, Capt. Jacob, Mr. Main, and M. Otto Struve, for the purpose of enabling the members of the Society, who were furnished with good telescopes, and who had been in the habit of viewing *Saturn*, to judge of the probable fidelity of the different estimations. Of these representations Mr. Main's was that which gave the largest measure of the dark interval between the body of the planet and the inner edge of the interior bright ring, while M. Otto Struve's representation gave by far the smallest value. Mr. Main drew attention to this fact, that the measures of M. Otto Struve were substantiated by those of no modern or contemporaneous observer, and were totally at variance with all the ancient observations, and consequently that the natural inference was, that some unusual circumstance had affected his estimations. He also showed that if M. Otto Struve's results were neglected, there would be no ground whatever for his theory respecting the approximation of the rings towards the body of the planet. In connexion with this part of the subject, Mr. Main drew attention to a Dutch pamphlet recently written by Professor Kaiser of Leyden,* in which, by considerable research, new light was thrown upon the observations of Huygens, and, at least during the lifetime of that observer, the inferences drawn by M. Otto Struve were found, by additional observations of Huygens, to be contradicted.

Mr. Main then drew attention to a fact connected with his own measures, as showing the delicate nature of such inquiries, and the singular errors to which the measurers are liable. In the early portion of the measures of 1853, for instance, the measured breadth of the dark space was larger than the breadth of the system of bright rings; this difference between them decreased continually and systematically till the two appeared to be equal, after which the breadth of the dark rings became increasingly larger than the dark space. This difficulty was ultimately cleared up by a comparison of the values of the diameter of the ball of the planet obtained in this series of measures, with Mr. Main's own standard value given in his paper on the *Form of the Planet Saturn*, by which it appeared that the excess of the standard above the measured values decreased continually, and that when these excesses were applied negatively, as corrections to the mea-

* Professor Kaiser has recently informed the Editor, in reply to a communication respecting this paper, that it is also published in vol. iii. of the *Proceedings of the Royal Academy of Sciences of Amsterdam*. An account of it will be given in a future number of the *Notices*.—R. G.

sured breadths of the dark space, the anomaly entirely disappeared.

In confirmation of Mr. Main's measures, he stated that he had received from the President, Mr. Johnson, some very recently-made measures, kindly undertaken at his request, which agree very closely with his own; and the announcement of this agreement elicited from the members present an expression of approbation.

A conversation on the subject afterwards followed, in which the President, the Astronomer Royal, Mr. Hind, and Mr. De la Rue took part, and the general correctness of Mr. Main's conclusions seemed to be acquiesced in by all those gentlemen.

Elements of Atalanta. By M. Bruhns.

Epoch 1855, Nov. o. Berlin M.T.

M		341° 22' 48".1
π		40 42 12.7
Ω		359 0 8.8
l		19 6 45.2
ϕ		17 5 3.5
μ		769".261
Log. a		0.442621

These elements are calculated from the following three Berlin observations:

			M.T. Berlin.			R.A.			Decl.					
			^h	^m	^s	[°]	[']	["]	[°]	[']	["]			
1855.	Oct.	12	..	10	33	3.9	..	343	50	32.0	..	6	48	49
		17	..	9	46	31.4	..	343	1	43.8	..	6	3	15.6
		23	..	7	4	27.4	..	342	21	43.8	..	5	6	16.4

Observations of Comet III. 1855, taken with the 8½-inch Refractor of the Liverpool Observatory. By John Hartnup, Esq.

G.M.T.			Comet's R.A.			Log. $\frac{p}{P}$	N.P.D.	Log. $\frac{q}{P}$
^{1855.}	^h	^m ^s	^h	^m ^s			[°] ['] ["]	
Dec 2	11	57 9.5	7	4 11.13	—8.395		86 24 55.2	—9.8856
	2	12 54 1.0	7	3 10.76	—8.210		86 24 19.7	—9.8828

Star of Comparison, Procyon.

Assumed mean place for Jan. o, 1855.

7^h 31^m 42^s.51 R.A. 84° 24' 24".45 N.P.D.